

Transmitted Via Facsimile to (571) 273-8300

PATENT
Atty. Dkt. No 130394UL (12553-1011)

WHAT IS CLAIMED IS:

1. (Currently Amended) A trigger extraction system for obtaining an event trigger for an event occurring in a region of interest while the region of interest is scanned by an ultrasound imaging system, the ultrasound imaging system having image memory and a display, the image memory storing image data defining a series of ultrasound images of a region of interest, the display displaying the ultrasound images, the trigger extraction system comprising:

a processor;

a memory coupled to the processor; and

a trigger extraction program stored in the memory for execution by the processor, the trigger extraction program comprising instructions for accessing ultrasound trigger data obtained from a trigger region, analyzing the trigger data for a trigger characteristic, and storing an event trigger based on the trigger characteristic, the trigger data being recorded with an ultrasound beam defocused in an azimuth direction, the event trigger being used in connection with controlling display of the ultrasound images, wherein the instructions for analyzing comprise instructions for filtering the trigger data, the filter utilizing a cutoff frequency that is set based on the trigger characteristic independent of the image data.

2. (Previously Presented) The trigger extraction system of claim 1, where the trigger region at least partially differs from the region of interest.

3. (Previously Presented) The trigger extraction system of claim 1, wherein the trigger data comprises Doppler data with a phase component, and wherein the trigger extraction program further comprises instructions for high pass filtering the phase component based on the trigger characteristic.

4. (Previously Presented) The trigger extraction system of claim 1, where the instructions for analyzing the trigger data comprise instructions for averaging the trigger data over at least a portion of a depth range.

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5. (Original) The trigger extraction system of claim 4, where the instructions for averaging the trigger data comprise instructions for averaging high pass filtered phase components of the trigger data.

6. (Original) The trigger extraction system of claim 4, wherein the instructions for analyzing the trigger data further comprise instructions for interpolating an additional event trigger.

7. (Previously Presented) The trigger extraction system of claim 1, where the trigger data and image data are recorded using ultrasound beams having different values for at least one acoustic parameter.

8. (Previously Presented) The trigger extraction system of claim 1, wherein the instructions for analyzing comprise instructions for determining at least one of a signal maxima and signal minima.

9. (Cancelled)

10. (Original) The trigger extraction system of claim 1, wherein the region of interest is a fetal heart.

11. (Original) The trigger extraction system of claim 10, wherein the trigger region comprises fetal tissue.

12. (Currently Amended) A machine readable medium storing instructions that cause an ultrasound imaging system that obtains images of a region of interest to perform a method, the ultrasound imaging system having image memory and a display, the image memory storing image data defining a series of ultrasound images of a region of interest, the display displaying the ultrasound images, the method comprising:

accessing ultrasound trigger data obtained from a trigger region, the trigger data being recorded with an ultrasound beam defocused in an azimuth direction;

analyzing the trigger data for a trigger characteristic; and

storing an event trigger based on the trigger characteristic, the event trigger being used in connection with controlling display of the ultrasound images, where the trigger data comprises Doppler data, and wherein the step of analyzing comprises high pass filtering the Doppler data

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utilizing a cutoff frequency that is set based on the trigger characteristic independent of the image data.

13. (Previously Presented) The machine readable medium of claim 12, wherein the trigger region at least partially differs from the region of interest.

14. (Cancelled)

15. (Original) The machine readable medium of claim 12, wherein the step of analyzing comprises the step of averaging a high pass filtered component of the trigger data.

16. (Previously Presented) The machine readable medium of claim 12, wherein the trigger data and image data are recorded using ultrasound beams having different values for at least one acoustic parameter.

17. (Original) The machine readable medium of claim 12, where the step of analyzing comprises the step of determining a signal extreme from the trigger data.

18. (Original) The machine readable medium of claim 12, wherein the step of analyzing comprises the steps of determining high pass filtered trigger data, and determining at least one of a signal maxima and signal minima of the high pass filtered trigger data.

19. (Original) The machine readable medium of claim 12, wherein the region of interest is a fetal heart.

20. (Original) The machine readable medium of claim 19, wherein the trigger region comprises fetal tissue.

21. - 29. (Cancelled)

30. (Currently Amended) A method for obtaining an event trigger for an event occurring in a region of interest utilizing an ultrasound imaging system, the ultrasound imaging system having image memory and a display, the image memory storing image data defining a series of ultrasound images of a region of interest, the display displaying the ultrasound images, the method comprising:

accessing ultrasound trigger data from a trigger region, the trigger data being recorded with an ultrasound beam defocused in an azimuth direction;